John Kloosterman

Contact Information

4861 Bob and Betty Beyster Building
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Research Interests

My primary research areas are computer architecture and compilers, particularly making throughput processors like GPUs more efficient. This allows better neural networks for image recognition and machine translation to be trained in datacenters, and enables mobile devices to filter images and recognize speech without draining the battery.

Education

University of Michigan, Ann Arbor, MI
Ph.D. 2018, M.S. 2015, Computer Science and Engineering
Thesis: Data Resource Management in Throughput Processors
Advisor: Scott Mahlke

Calvin College, Grand Rapids, MI
B.S. 2013, Computer Science with honors, Philosophy

Teaching Experience

Elementary Programming Concepts (EECS 183)
University of Michigan, Fall 2018

Programming and Introductory Data Structures (EECS 280)
University of Michigan, Winter 2017

- 223 students, 29 teaching assistants
- Topics included pointers, list data structures, object-oriented programming, recursion

Student Evaluations

"Overall, the instructor was an excellent teacher": 4.67 (5-point scale)
Selected student comments:

- *"I really appreciate how you don't go too fast and explain things systematically and thoroughly, without assuming that we already know the topic before being taught it."*
- *"I love the use of examples in class, and the effective analogies"*
- *"Extremely caring, thoughtful, and inclusive"*

Other Teaching and Mentoring Experience

Graduate Teaching Certificate, Center for Research on Learning and Teaching
Tutored an adult learner in basic numeracy, Siena Literacy Center, Detroit
Created and led graduate student GPU architecture reading group
Ran drop-in help sessions and tutored undergraduate peers at Calvin College

Publications

RegLess: Just-in-Time Operand Staging for GPUs
John Kloosterman, Jonathan Beaumont, D. Anoushe Jamshidi, Jonathan Bailey, Trevor Mudge, Scott Mahlke
International Symposium on Microarchitecture (MICRO) 2017 (19% acceptance rate)

WarpPool: Sharing Requests with Inter-Warp Coalescing for Throughput Processors
John Kloosterman, Jonathan Beaumont, Michael Wollman, Ankit Sethia,
Ron Dreslinski, Trevor Mudge, Scott Mahlke
International Symposium on Microarchitecture (MICRO) 2015 (22% acceptance rate)

local_malloc: malloc() for OpenCL local memory
John Kloosterman, Joel Adams
International Conference on High Performance Computing, Networking, Storage and Analysis (SC) 2013, ACM Student Research Competition poster (48% acceptance rate)

Work Experience

Lecturer III, Computer Science and Engineering, September 2018 –
University of Michigan, Ann Arbor, MI

Research Fellow, Summer 2018
University of Michigan, Ann Arbor, MI; PI: Scott Mahlke
Leveraged compiler analyses to secure protocols used in autonomous vehicle systems.

Google Software Engineering Intern, Summer 2015
Google, Mountain View, CA
Designed and implemented a high-performance parallel C++ memory profiling tool used across many Google projects.

Service

Research Policy Committee, University of Michigan, 2015 – 16, 2016 – 17
Core Curriculum Committee, Calvin College, 2010 – 2013
Reviewer, SIGCSE 2018 experience reports and posters

Awards

Winner, University of Michigan 1000 Pitches Startup Competition 2014
Calvin Computing Award (top computer science graduate), Calvin College

Skills

Languages: C++, C, Python, CUDA, OpenCL, JavaScript
Tools: LLVM, Pin, GPGPU-sim, SASSI, gem5